

FIG. 1

Common Microelectronic Package Structures

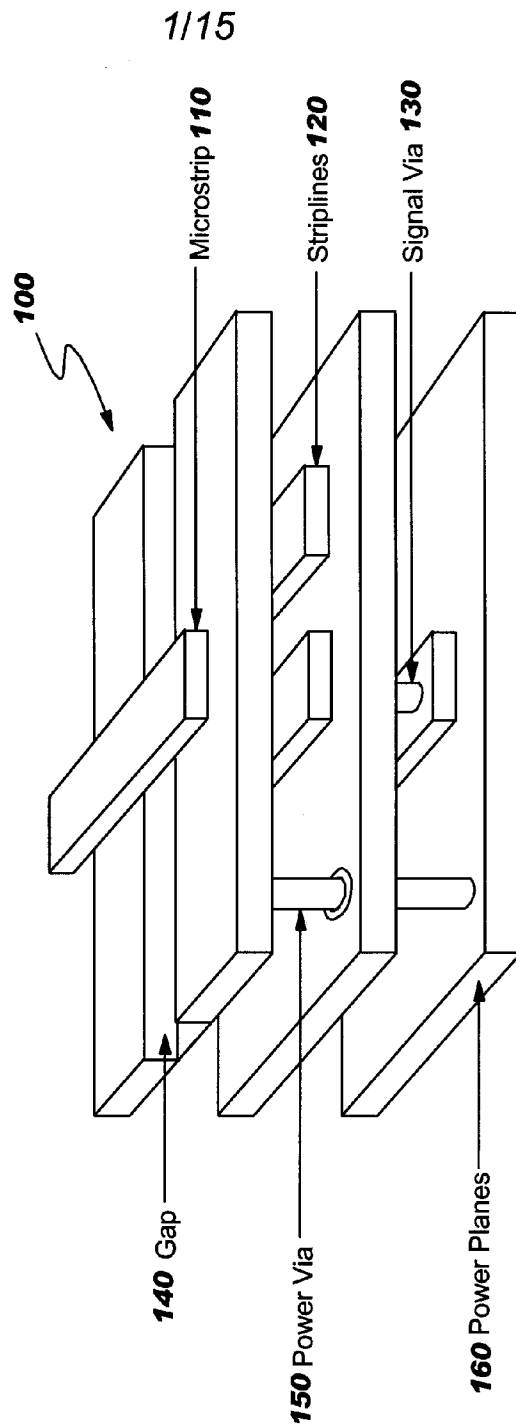
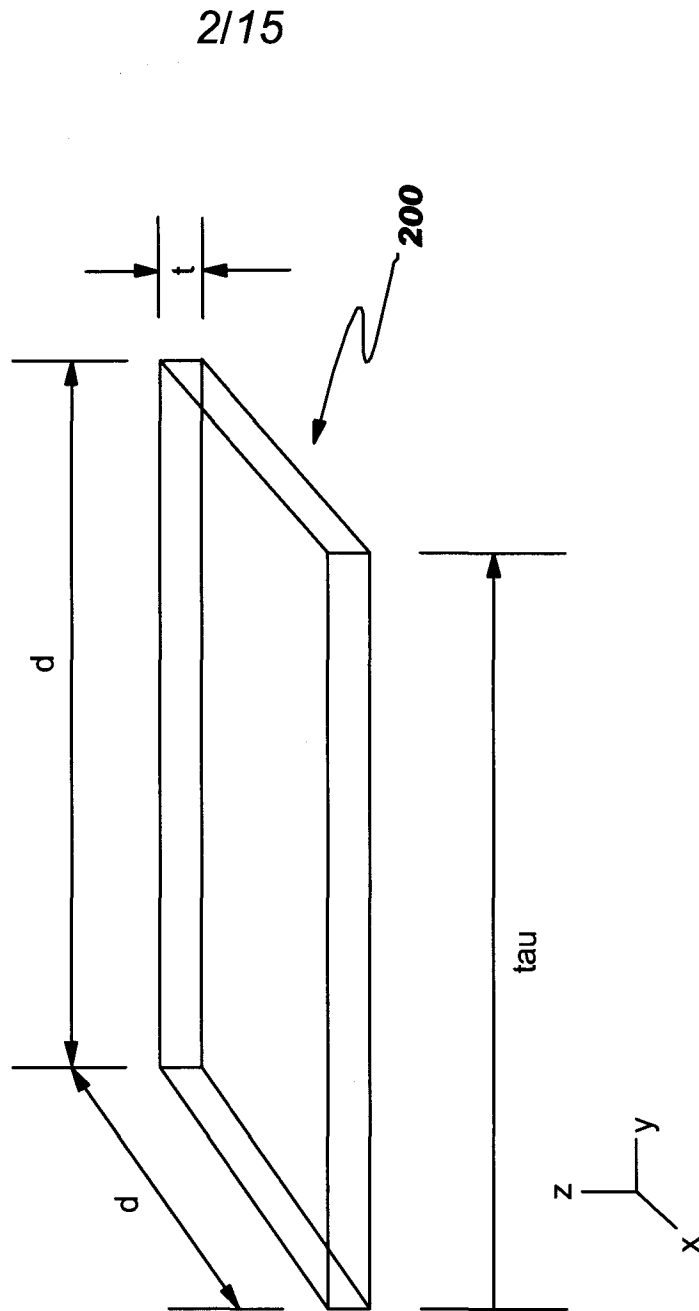


FIG. 2

Cell Dimensions



Intra-Cell Power Vias Equivalent

FIG. 3A

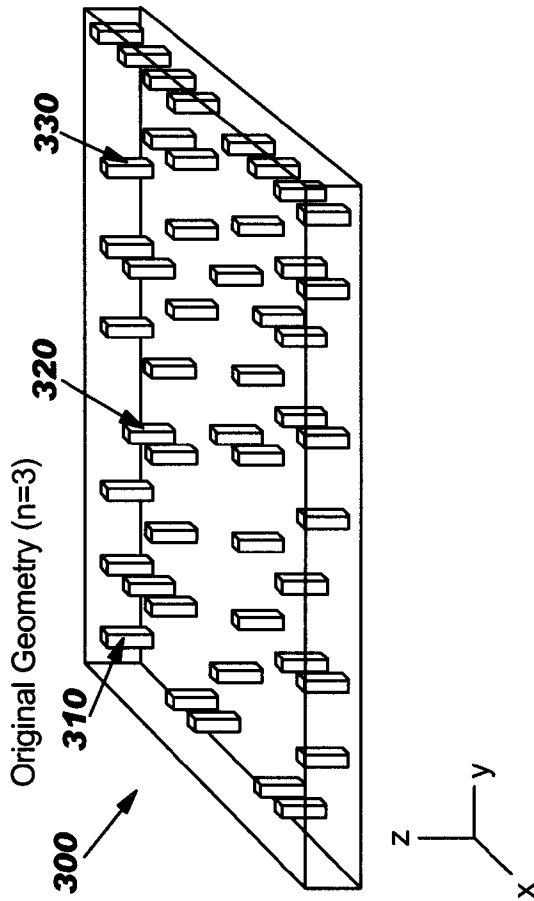


FIG. 3B

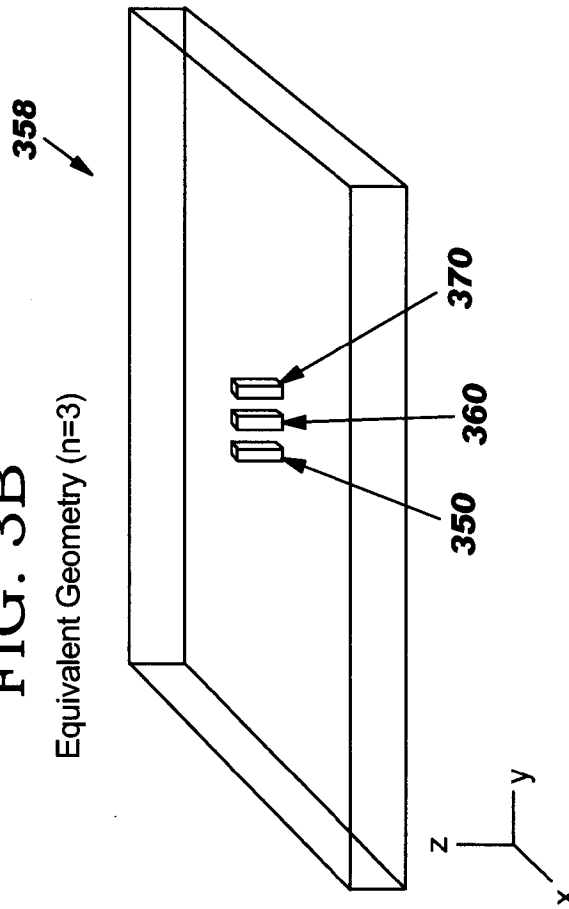
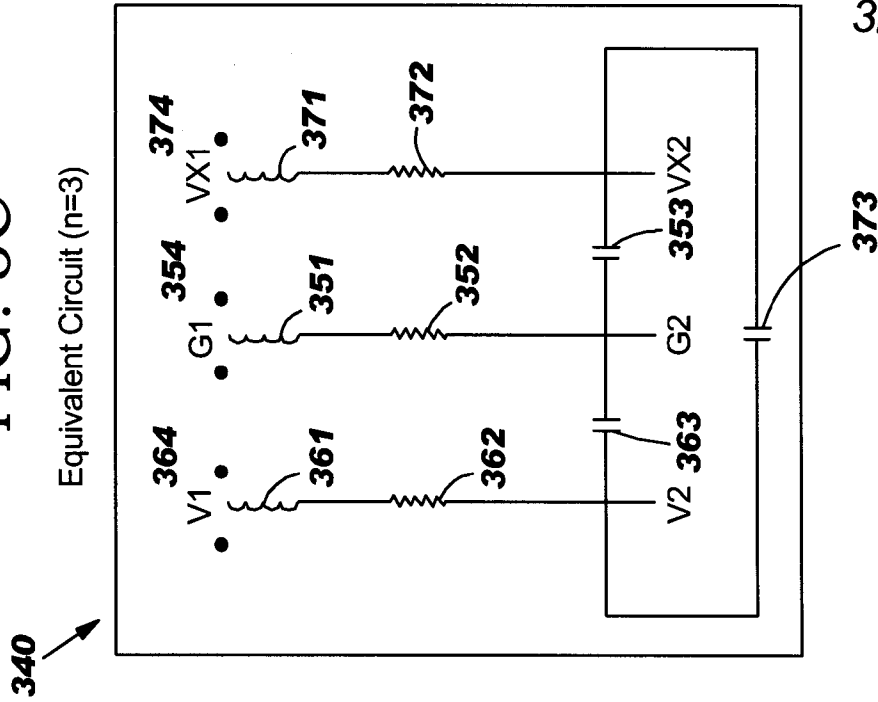


FIG. 3C



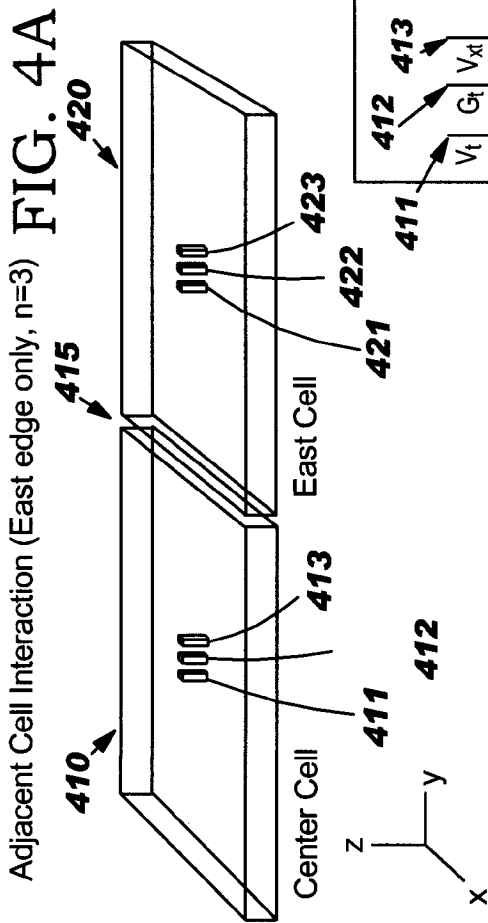
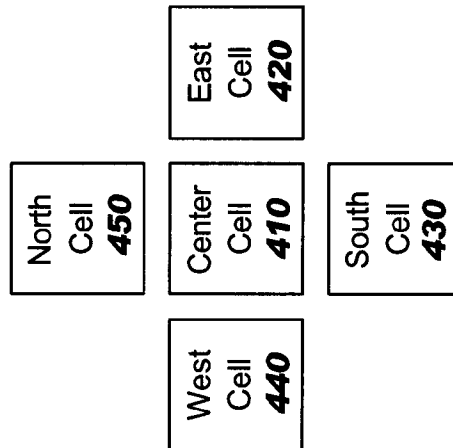


FIG. 4B

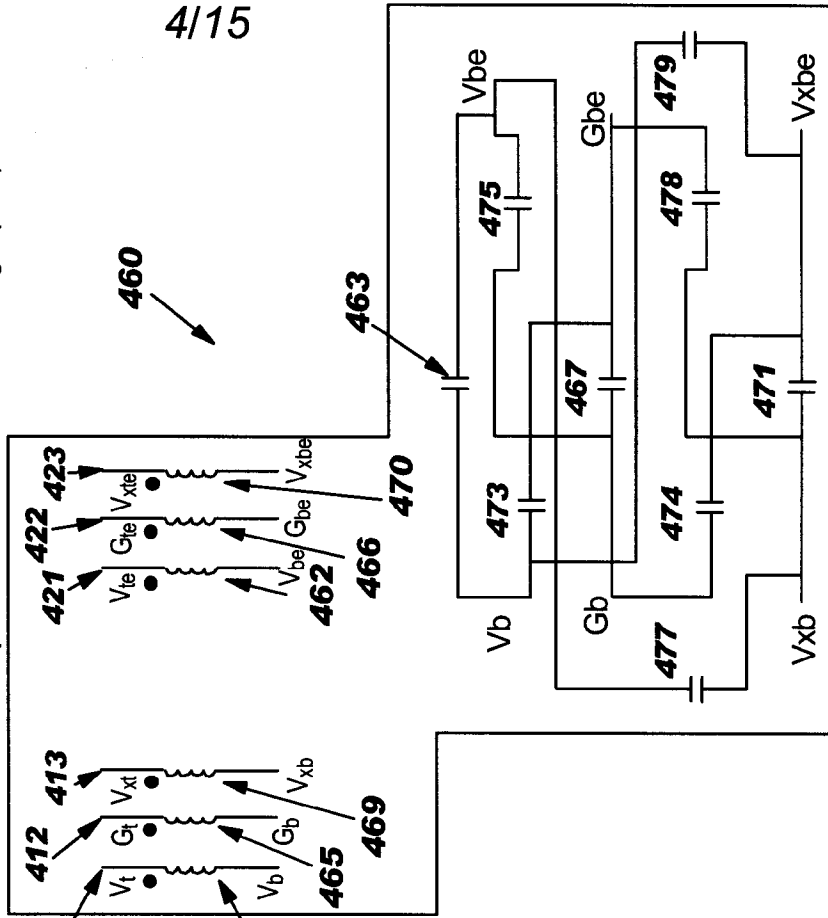
Top View (all edges)



Inter-Cell Power
Vias Equivalent

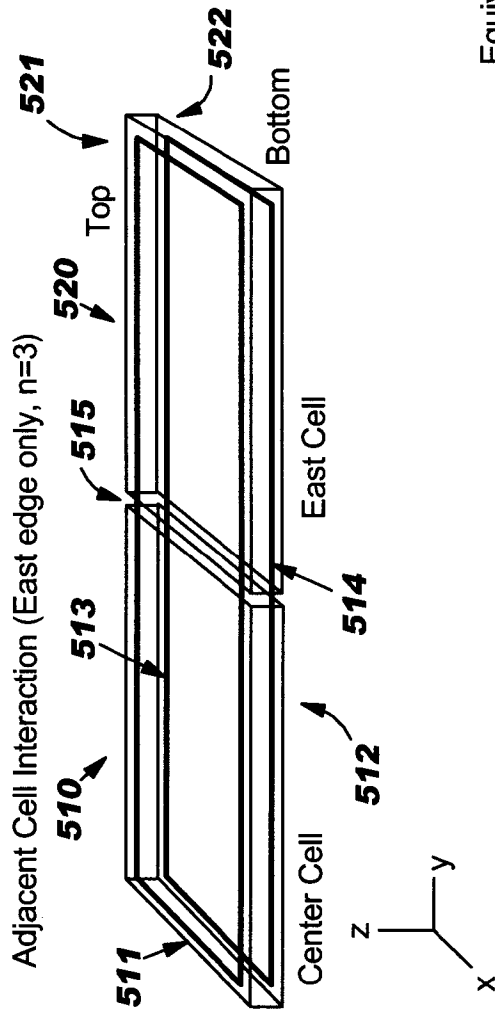
FIG. 4C

Equivalent Circuit for Each Edge ($n=3$)



Intra- and Inter-Cell Power Plane Equivalent

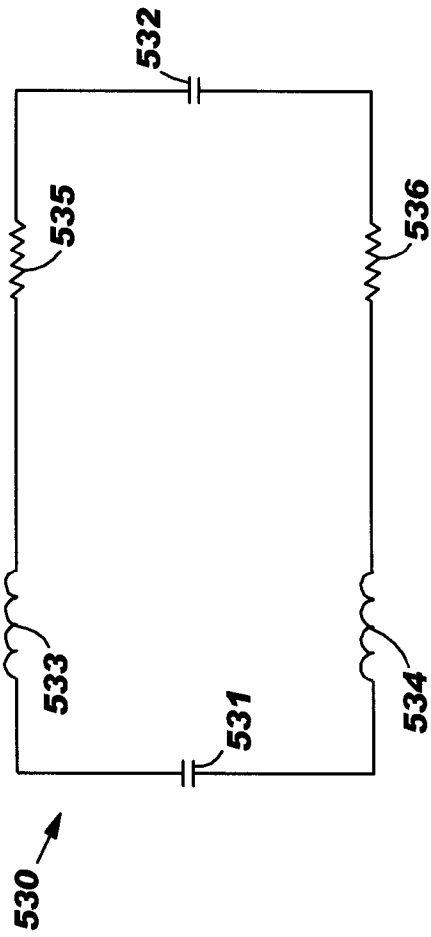
FIG. 5A



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FIG. 5B

Equivalent Circuit for Each Edge ($n=2$)



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FIG. 5C

Two RLC equivalents of power-plane cell

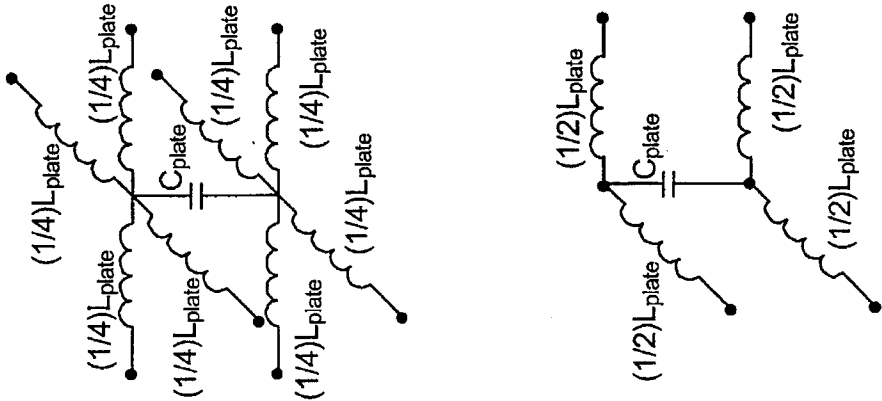
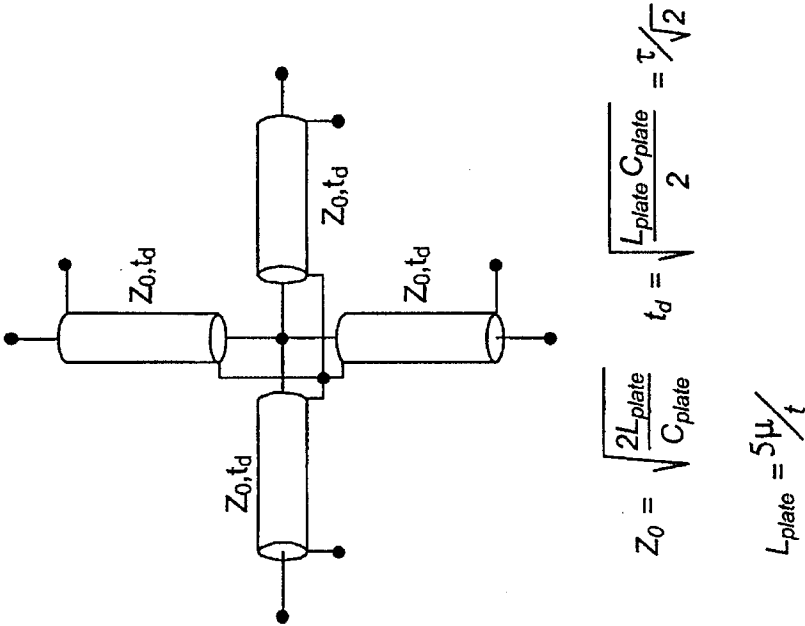


FIG. 5D

Transmission-line equivalent
of power-plane cell



Intra-Cell Signal Vias Equivalent

FIG. 6A
Geometry (n=28)

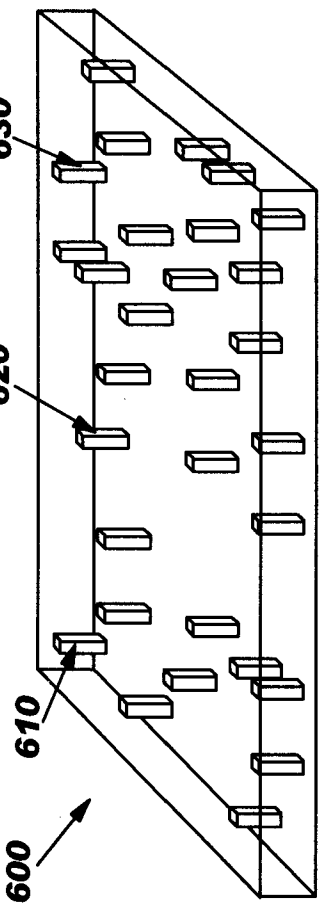


FIG. 6B
Geometry (n=28)

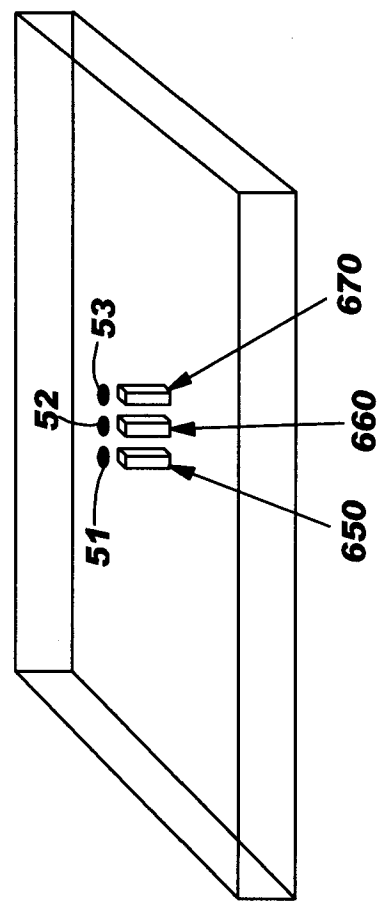
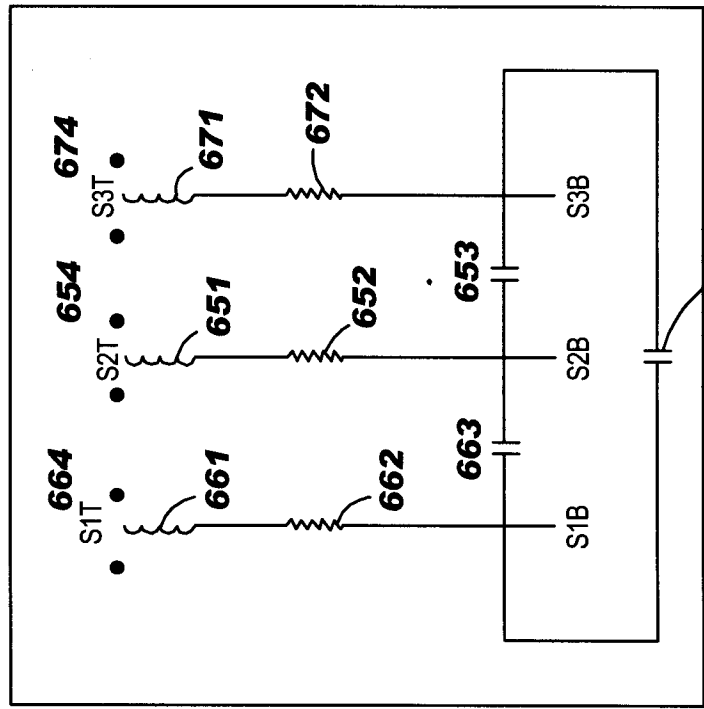


FIG. 6C

Equivalent Circuit (n=3)



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Inter-Cell Signal Vias Equivalent

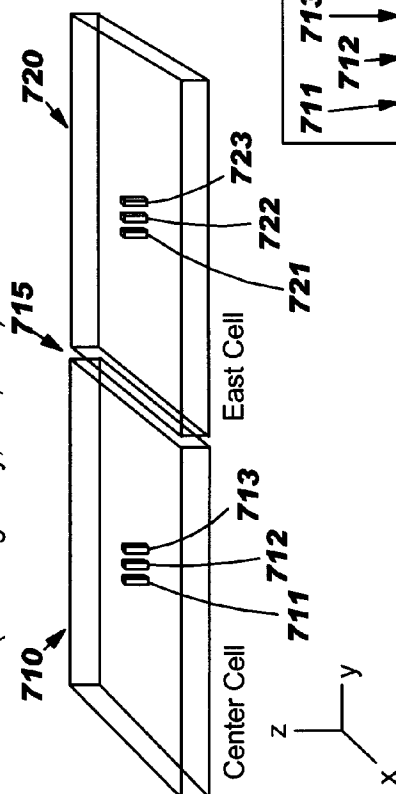
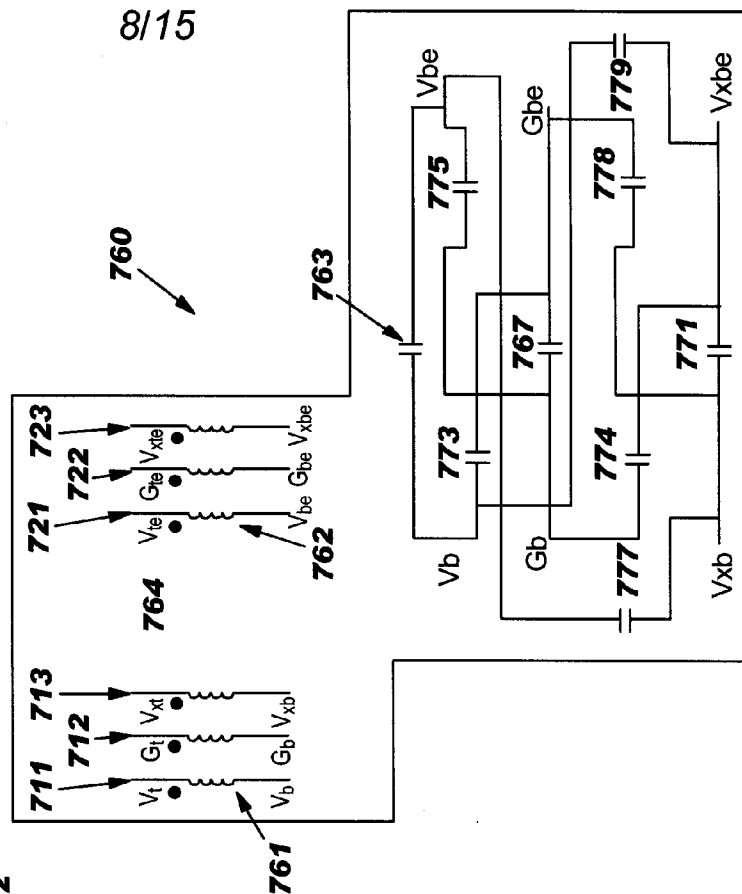


FIG. 7B

Equivalent Circuit at Adjacent Edge ($n=3, m=3$)



Intra-Cell Signal and Power-Supply Vias Equivalent

FIG. 8A

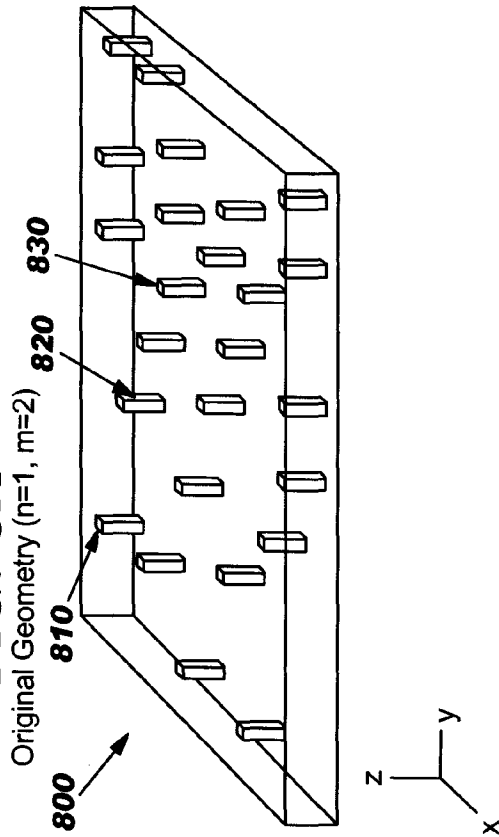


FIG. 8B

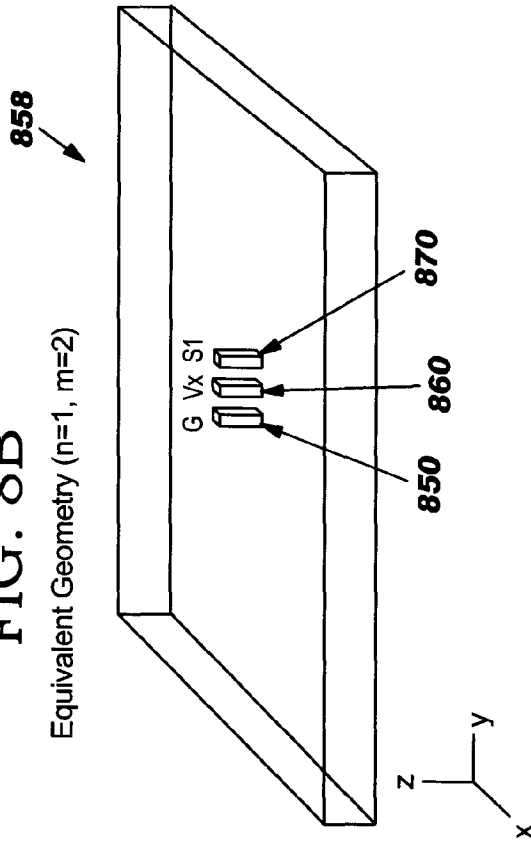
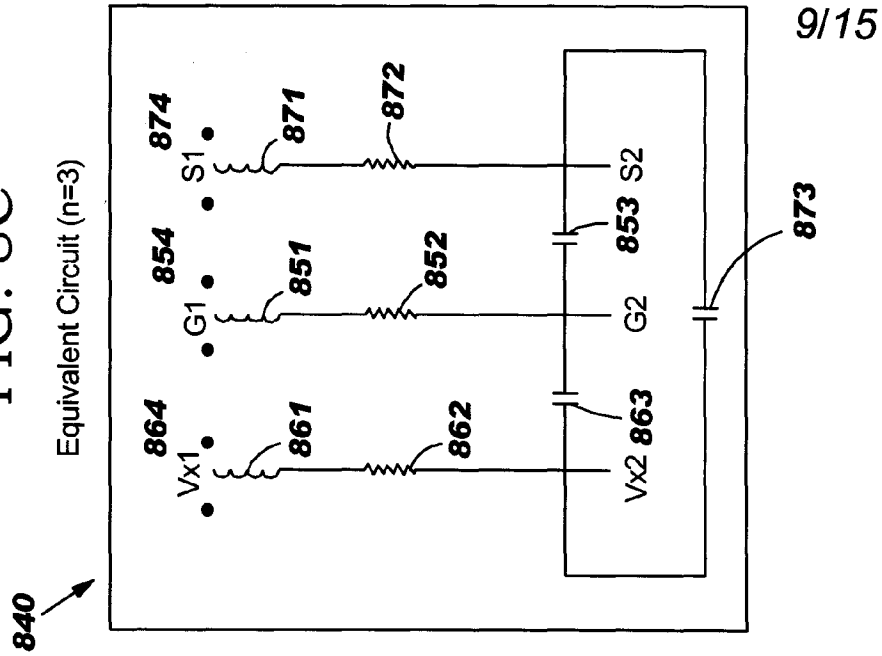
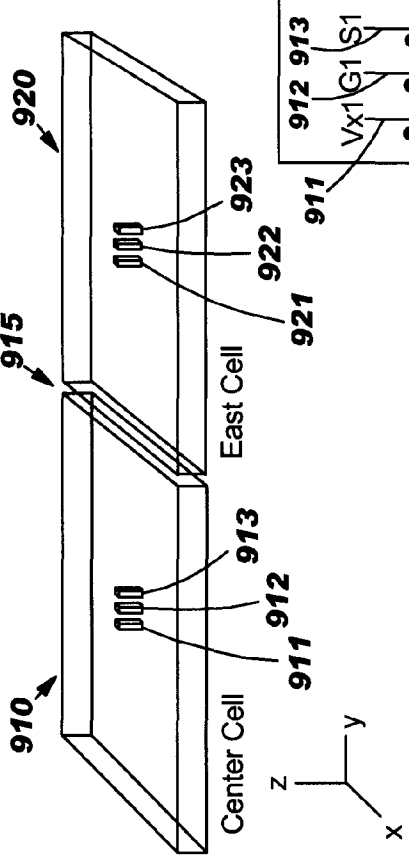


FIG. 8C



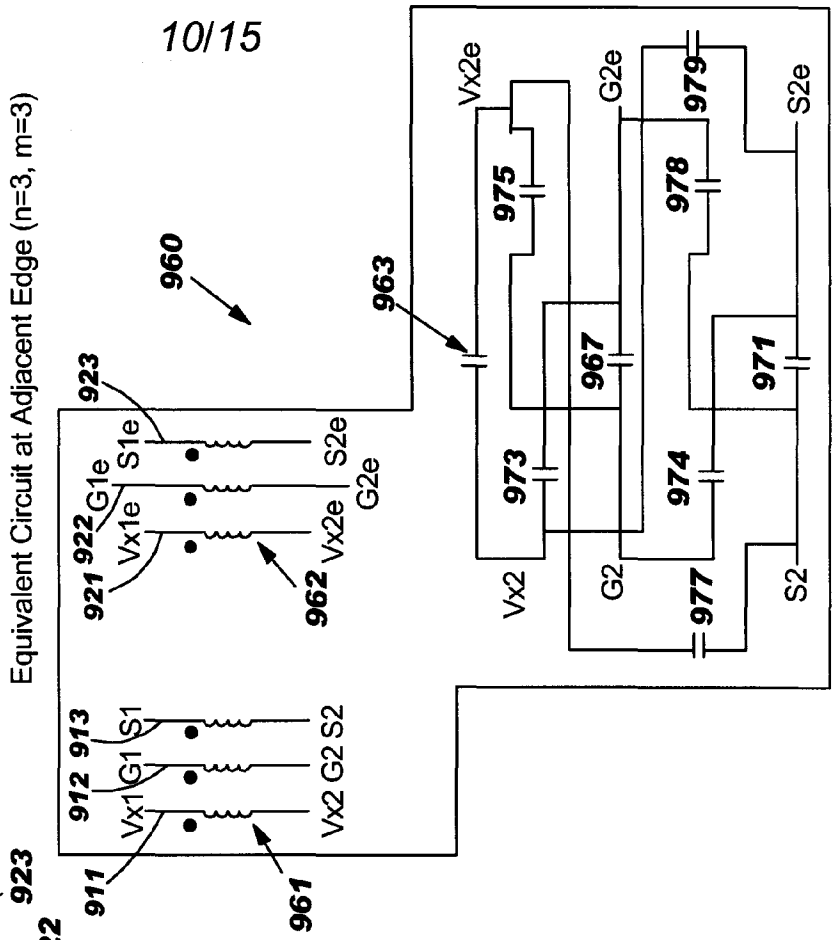
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Adjacent Cell Interaction, Equivalent Geometry
(East edge only, $n=3$, $m=3$)



Inter-Cell Signal and Power-Supply
Vias Equivalent

FIG. 9B



Intra-Cell Signal Wires Equivalent

FIG. 10A

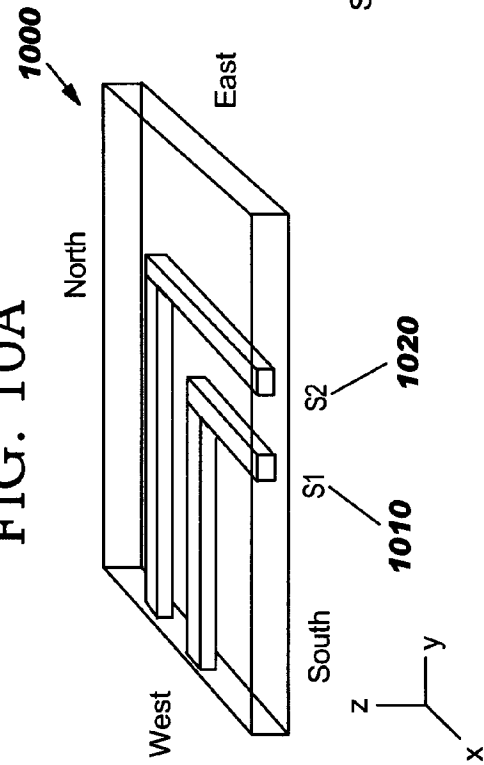


FIG. 10B

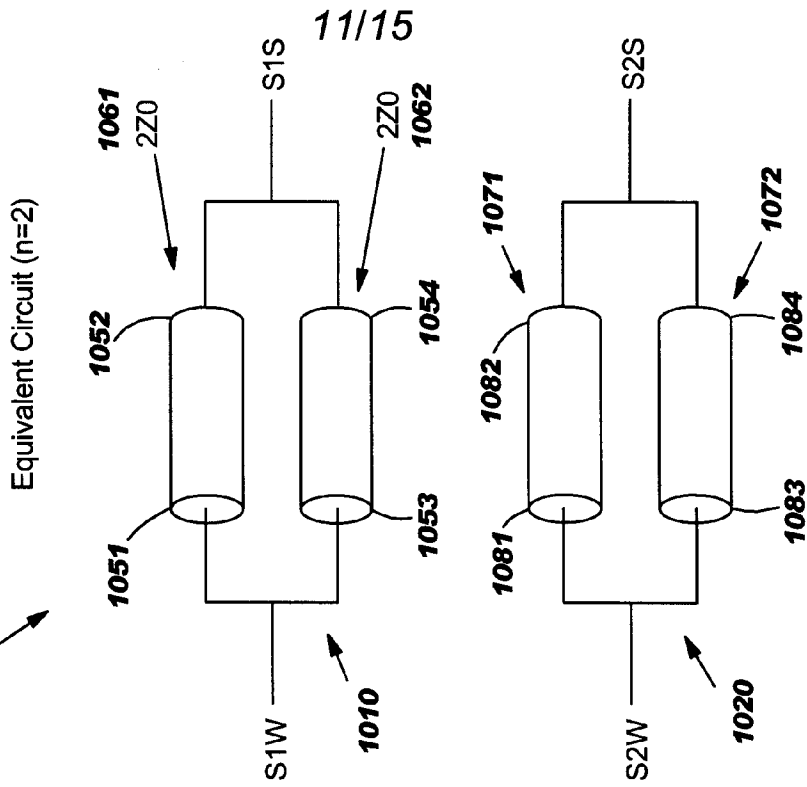


FIG. 11A

Geometry (n=2, m=2)

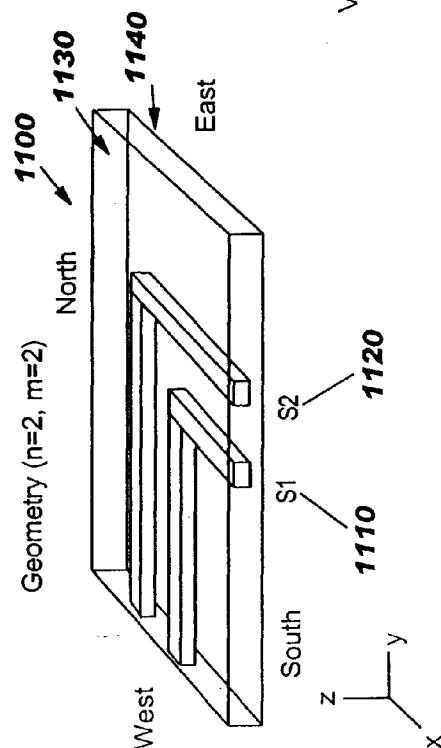
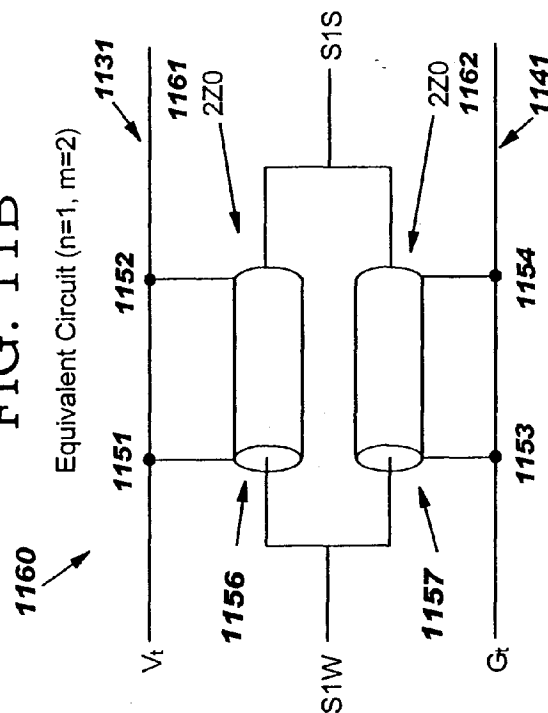
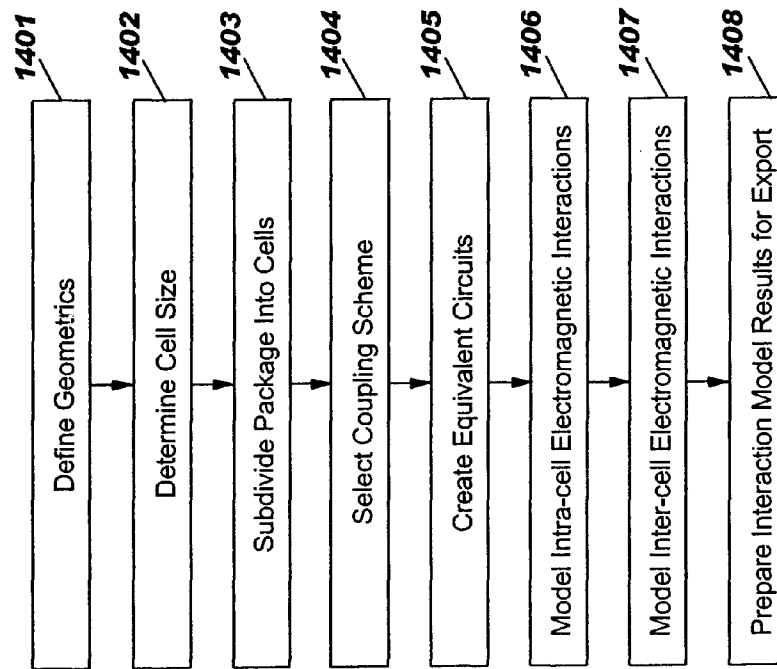


FIG. 11B

Equivalent Circuit ($n=1$, $m=2$)



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FIG. 12
(Flow Chart) 1400

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FIG. 13A

